

## ABSTRACT

A  $\text{LiFePO}_4$  carbon composite material is to be synthesized in a single phase satisfactorily to achieve superior cell characteristics. In preparing a cathode active material, starting materials for synthesis of a compound represented by the general formula  $\text{Li}_x\text{FePO}_4$ , where  $0 < x \leq 1$ , are mixed, milled and a carbon material is added to the resulting mass at an optional time point in the course of mixing, milling and sintering.  $\text{Li}_3\text{PO}_4$ ,  $\text{Fe}_3(\text{PO}_4)_2$  or its hydrates  $\text{Fe}_3(\text{PO}_4)_2 \cdot n\text{H}_2\text{O}$ , where  $n$  denotes the number of hydrates, are used as the starting materials for synthesis of  $\text{Li}_x\text{FePO}_4$ . The the temperature of a product from said sintering is set to  $305^\circ\text{C}$  or less when said product from said sintering is exposed to atmosphere. The oxygen concentration in a sintering atmosphere is set to 1012 ppm in volume or less at the time point of sintering.